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REMARKS

Claims 1-32 and 36-54 are pending in the present Application. Claims 38-42 and 51-54 have been allowed, Claims 46-47 has been cancelled, Claims 1, 2, 4, 6-8, 12-16, 20-22, 24-26, 30-32, 38-45, and 48-54 have been amended, and Claim 55 has been added, leaving Claims 1-32, 36, 37, 43-45, 48-50, and 55 for consideration upon entry of the present Amendment.

Claims 1, 2, 4, 6-8, 12-16, 20-22, 24-26, 30-32, 38-45, and 48-54 have all been amended to provide clarity and consistency of language throughout the claims.

With regard to the amendments to Claim 1, 2, 6, 16, 20, support for these amendments can at least be found in the specification at page 11, line 17-28 and in Table I and II on pages 8 to 9.

Support for new Claim 55 can at least be found in the originally filed claims and in the specification in Table I and Table II on pages 8 to 9.

The specification has similarly been amended merely to provide clarity and consistency to the specification. Support for this amendment can at least be found in the specification at page 11, lines 17-28.

No new matter has been introduced by these amendments. Reconsideration and allowance of the claims is respectfully requested in view of the above amendments and the following remarks.

Summary of Examiner Interview

First, Applicants would like to again thank the Examiner for the telephone discussion on December 22, 2003.

During that interview, the Examiner agreed to withdraw the rejection to Claims 51-54 and allow those claims.

Additionally, U.S. Patent No. 6,258,233 to Sugiyama et al. was discussed. More particularly, references were made to Col. 2, lines 24-50 and Figure 18 in discussing the amount of monoclinic phase present in the electrolytic body of Sugiyama et al.

IDS Submission

Applicants submitted an Information Disclosure Statement on November 5, 2002. With regard to that submission, the Examiner did not initial as considering Patent Application No.

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09/741,498. In paper 6, the Examiner stated "the application of 09/741,498 has also not been considered because it is not a U.S. Patent Document, nor is it a document that qualifies as prior art under 35 U.S.C. 102. The Examiner has only considered this document with respect to double patenting." However, it is noted that this Application has been published and has issued as a patent (U.S. Patent No. 6,562,747). Applicants respectfully request the Examiner to reconsider this reference and initial the PTO-1449 form as having considered it. A copy of the PTO-1449 form is submitted herewith for the Examiner's convenience.

Double Patenting

Claim 43 stands objected to under 37 CFR 1.75 as allegedly being a substantial duplicate of Claim 36.

This objection is moot, as Claim 43 now depends from new Claim 55.

Claim Rejections Under 35 U.S.C. §103(a)

Claims 1, 4, 6-18, 20-22, 25-32, 36, 37, and 43-54 stand rejected under 35 U.S.C. §103(a), as allegedly unpatentable over U.S. Patent No. 6,258,233 to Sugiyama et al. in view of U.S. Patent Publication No. 2003/0006139 A1 to Noda et al. Applicants respectfully traverse this rejection.

Independent Claims 1 and 16 comprise, *inter alia*, mixing monoclinic phase zirconia with yttria, alumina and a solvent to form a mixture, wherein the zirconia has about 100 ppm silica or less.

Sugiyama et al. teach a zirconia solid electrolytic body made of a partially stabilized zirconia containing 5-7 mol% yttria having a mixed phase structure including a cubic phase, a monoclinic phase, and a tetragonal phase. (Abstract) As noted by the Examiner, "Sugiyama does not explicitly suggest also including alumina to the zirconia mixture." (Paper 13, page 3). They further teach that the "zirconic solid electrolytic body is made of partially stabilized zirconia. When the yttria content in the partially stabilized zirconia is out of the range of 5-7 mol%, the thermal expansion difference between the zirconic solid electrolytic body and the alumina substrate increases, while causing stress acting on the alumina substrate." (Col. 2, lines 51-56).

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Noda et al. teach a solid electrolyte layer or body formed "from partially or wholly stabilized zirconia, which layer contains alumina in an amount of 10% to 80% by weight, particularly 30% to 75% by weight." (Abstract). They teach the zirconia grains contained in the solid electrolyte layer include those assuming a tetragonal phase, those assuming a monoclinic phase, and those assuming a cubic phase. (Paragraph [0068]).

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a *prima facie* case of obviousness, i.e., that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

Absent in the above cited references, either alone or in combination, is any teaching or suggestion that the zirconia being mixed to form the electrolyte body is monoclinic phase zirconia. Rather, Sugiyama et al. merely teach that the final electrolytic body comprises a partially stabilized zirconia containing 5-7 mol% yttria and having a mixed phase structure including cubic phase, a monoclinic phase, and a tetragonal phase. Similarly, Noda et al. teach that the electrolytic body is formed from partially or stabilized zirconia. Noda et al. further teach that the zirconia grains contained in the solid electrolyte layer include those assuming a tetragonal phase, those assuming a monoclinic phase, and those assuming a cubic phase. The above cited-references fail to teach or suggest mixing monoclinic phase zirconia with yttria and alumina. In other words, one skilled in the art considering these references at the time Applicants filed their application would not have been motivated to mixing monoclinic phase zirconia with yttria, alumina, and a solvent to form a mixture, wherein the zirconia has about 100 ppm silica or less. For at least this reason, independent Claims 1 and 16 are not obvious over Sugiyama et al. in view of Noda et al. Accordingly, independent Claims 1 and 16 are allowable over Sugiyama et al. in view of Noda et al. Moreover, as a dependent claims from an allowable independent claim, Claims 2-37, 43-45, and 47-54, are, by definition, also allowable.

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Claims 2, 3, and 24 stand rejected under 35 U.S.C. §103(a), as allegedly unpatentable over U.S. Patent No. 6,258,233 to Sugiyama et al. in view of U.S. Patent Publication No. 2003/0006139 A1 to Noda et al., and further in view of U.S. Patent No. 5,968,673 to Aizawa et al. Applicants respectfully traverse this rejection.

Aizawa et al. teach a solid electrolyte thin film and a manufacturing method for the same. (Abstract). The solid electrolyte thin film comprises yttria stabilized zirconia. (Abstract). The method includes regulating the grain size of solid electrolyte powders in the range of 0.1 to 5 microns. (Abstract). However, as mentioned above, Sugiyama et al. and Noda et al. fail to teach or suggest mixing monoclinic phase zirconia with alumina yttria and a solvent. Aizawa et al. fail to cure the defects of Sugiyama et al., and Noda et al. (as discussed above), fail provide any suggestion or motivation for combining these references, and fail to provide any expectation of success in such a combination. Consequently, an obviousness rejection employing the combination of Sugiyama et al., Noda et al., and Aizawa et al., fails to render the present claims obvious. Moreover, as dependent claims from allowable independent claims, Claims 2, 3, and 24, are by definition also allowable.

Claims 5 and 23 stand rejected under 35 U.S.C. §103(a), as allegedly unpatentable over U.S. Patent No. 6,258,233 to Sugiyama et al. in view of U.S. Patent Publication No. 2003/0006139 A1 to Noda et al., and further in view of U.S. Patent No. 4,897,174 to Wang et al. Applicants respectfully traverse this rejection.

Wang et al. disclose a gas sensing apparatus having a sensor element of yttria-stabilized zirconia. (Abstract) They teach that, after mixing, a slurry is exposed to a vacuum of 30 mm Hg for 1-2 minutes to ensure that no trapped air remains in the slurry (Col. 3, lines 32-34). The Examiner stated that it would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Wang et al. for the method of Sugiyama et al. and Noda et al. to ensure that there is no trapped air in the mixture. (Paper 7, page 6). However, as mentioned above, Sugiyama et al. and Noda et al. fail to teach or suggest mixing monoclinic phase zirconia with yttria, alumina, and a solvent. Wang et al. fail to cure the defects of Sugiyama et al., and Noda et al. (as discussed above), fail provide any suggestion or motivation for combining these references, and fail to provide any expectation of success in such a combination. Consequently, an obviousness rejection employing the combination of Sugiyama

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et al., Nodo et al., and Wang et al., fails to render the present claims obvious. Moreover, as dependent claims from allowable independent claims, Claims 5 and 23, are by definition also allowable.

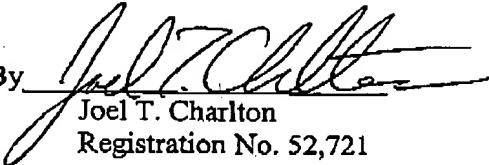
It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance is requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,

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By



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INFORMATION DISCLOSURE CITATION
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Polikarpus, et al.		

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January 23, 2001	1744

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
1		4,266,979	05/12/1981	Miyoshi, et al.	106	57	10/01/1979
2		4,542,110	09/17/1985	Nakada, et al.	501	103	12/19/1984
3		5,045,511	09/03/1991	Bosomworth, et al.	501	85	02/26/1990
4		5,087,595	02/11/1992	Marsh, et al.	501	105	06/25/1991
5		5,242,873	09/07/1993	Singh, et al.	501	103	04/18/1988
6		5,795,545	08/18/1998	Koripella, et al.	422	94	05/20/1996
7		6,121,177	09/19/2000	Guigonis, et al.	501	105	04/20/1999
8		09/741,498		Symons, et al.			12/19/2000

FOREIGN PATENT DOCUMENTS

REF	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
						YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

9	http://www.zrchem.com/zelem.htm, 2 pages
10	http://tosoh.com/EnglishHomePage/tcdiv/tcadcer.htm, 5 pages

EXAMINER	DATE CONSIDERED
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EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.